

Afternoon Session, June 6.

REPORT OF A CASE OF TUMOR OF THE CEREBELLUM, WITH AUTOPSY.

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OPERATION BY DR. JOHN F. ERDMANN,

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S. F.—German, 30 years of age, married, domestic. Entered hospital, September 1, 1894. The family history of the patient is entirely negative. Denies specific disease, and is not alcoholic. Was in good health till 1890, when she had an attack of influenza followed by headache. There was also vomiting accompanied by retching. The vomiting recurred at intervals for about one year, not to return again for three years. Headaches have been more or less constant since the original attack of influenza, but at first were noticed only in the morning, later, in the evening as well; till, finally, they became constant. The pain is referred to the brow, extending back to the occiput, and radiating to base of the brain with point of greatest intensity over right orbit. Two years ago, eye-balls became prominent, and flushing of the cheeks appeared. In the spring of '93, was much disturbed by flashes of light before both eyes, more marked on the right. In August, 1893, right eye could distinguish between light and darkness only, although sight in left eye continued good. In March, 1894, she entered German Hospital where she was treated with large doses of iodide without beneficial results.

In May, 1894, patient became entirely blind and headaches became more severe. At this same time, she lost the sense of smell, and became deaf in the right ear

which was subject to "stinging sensations" as well. Speech and deglutition were not affected. Memory slightly impaired, but intelligence undisturbed. For a year before entering Hospital for Incurables, there had been some general weakness of arms and legs.

In the spring of 1894, she had her first general convulsion. These convulsions have continued since then at irregular intervals. Apart from the evidences of nervous diseases already noted, general health had been good, appetite excellent; menstruation regular, and nothing abnormal as regards bladder and rectum.

Her condition on entering hospital September 1, 1894, was as follows:

A woman of large frame, not anæmic, well-nourished, presenting no abnormalities of skin or muscular system. Her general expression is that of one totally blind. Her vegetative organs present no symptom of disease. Pulse regular and full, becoming very much more rapid, however, on suddenly rising from chair. Her intelligence is excellent. She is patient and uncomplaining; hair thick and glossy; eye-balls, prominent; pupils, equal, widely dilated; left iris reacts slightly to light; right, not at all.

Examination of eyes by Dr. Esson showed a double neuro-retinitis with right disk in condition of incomplete atrophy. The arteries are small with thickened walls. A clearly discernible connective tissue formation exists around the arteries. This connective tissue growth extends only one disk's width from the vessel-wall. The veins are somewhat tortuous. The upward movement of the globes is somewhat limited, and they have a slight tendency to turn towards the right. There is a slight divergent squint in both eyes. R. 5 + at the fundus; 2 + at the periphery.

To the upper and outer side of the optic disk is a yellow spot irregular in outline.

L. Patches of atrophic degeneration more marked on nasal side; refraction in centre of disk is 4 +; fundus 1 +. At the periphery of disk, involving about three-fourth of its circumference, the atrophy is more marked than in the disk proper. The amount of atrophy in both eyes is about equal. Patient is completely blind. Complete deafness in right ear, with impairment of bone conduction. Left ear can hear watch tick two inches from meatus; speech is normal; articulation distinct; deglutition and secretion of saliva are normal; taste acute; absolute bi-lateral anosmia; subjective sensations

of a stinging character passing to the frontal sinuses when penetrating odors are given her to smell; there is a very slight paresis of the right facial nerve. The patient is unable to wrinkle her forehead on either side. States, however, that she has never been able to do this, and that her mother also was without that power. There are no paralyses of the extremities; co-ordination is everywhere good; there is absolute absence of intention tremor, twitchings, contractions, contractures, or choreiform movements; gait is slow, hesitating as usual with the blind, but firm. Romberg's symptom is not only wanting, but patient can stand steadily on one foot at a time. She has no subjective sensations of dizziness. All forms of sensation are absolutely unimpaired. There is some slight increase of knee-jerks, with very faint right-sided clonus.

From her entrance into hospital till time of operation the patient's symptoms were slowly progressive. There were several attacks of convulsions general from the outset, accompanied by unconsciousness. The convulsions were short in duration, and the consecutive coma lasted about ten minutes. She was subject to attacks of projectile vomiting independent of time of taking food. Pain became extremely severe, preventing sleep, and commencing at right orbit radiating from the base of brain down through limbs. She was not only willing for an operation, but desired it, and although told that an operation would be but palliative, she said that she would take any possibilities rather than continue in the condition in which she was.

December 9, operation.

There was some pain after the operation. It disappeared, however, in a few days, not to return until a few days before her death. There was never any return of the convulsions until shortly before her death. Three weeks after the operation, hearing on contact returned to the right ear.

About a month after the operation, she could detect odors with the left nostril and the iris light reflex was active on both sides. She also saw, as a shadow, objects held before her eyes, though the truth of this may be doubted as she failed to recognize a lighted candle held before her eyes.

On February 7, patient had a chill and complained of great pain in head and back. Her temperature, which had been normal, took on the irregular course of infec-

tion, the skin around the wound became reddened and cedematus. There were also some convulsions beginning in right face and becoming general, and on the seventeenth she died, having been unconscious for several days.

The interest in the case as reported consists in the absence of localizing symptoms. The general symptoms left no doubt of the presence of tumor of the brain, *i. e.*, the optic neuritis, the convulsions, and the excessive cephalalgia. The situation of the pain was misleading. It had from the very beginning been situated in the right side of the head, with its point of greatest intensity over the orbit. There had, indeed, been some occipital pain, but this was almost lost sight of in the intensity and local tenderness anteriorly. The fact also that the loss of sight on the right side preceded that of the left, and the statement that there was loss of smell on the same side, later extending to both sides, lead me to believe the situation of the tumor as most probably under the frontal lobe and lying over the orbital plate, compressing directly the right optic nerve in front of the chiasm. This was confirmed by the absence of any other cranial nerve lesions which could aid in localizing the neoplasm. There is mention of a slight right facial paralysis, but it was indeed so slight that I was not able to satisfy myself of its existence. The presence, also, of deafness on the right side, which was absolute and which, singularly, after the operation partly disappeared, had suggested a cerebellar tumor. All other motor or sensory symptoms were absent, the hand grasp was equal and excellent on both sides, and there was nothing abnormal in the walk, evidencing the slightest weakness; the muscles were well-developed, and the reflexes approximately normal. At no time was there the slightest tendency to any staggering in the gait, nor any inclination to move or fall to one side, anteriorly or posteriorly. There was no inco-ordination, nor did the patient complain of dizziness or vertigo to any extent.

On these grounds we excluded a cerebellar growth, although we had that lesion in mind.

A second interesting point in the symptoms, was the long duration of the growth without producing any mental deterioration. The patient thoroughly understood her case. She had been examined by a number of physicians and was able to describe her feelings and her previous history with great accuracy, and insisted on an

operation, if there was the slightest chance of being relieved of her intolerable pain.

The third point of interest was the complete relief from pain which followed the operation, and which continued until the symptoms of basilar meningitis manifested themselves.

The autopsy showed the cause of death to have been a purulent meningitis at the base of the brain extending down the cord. This evidently was of recent origin and occurred probably not more than ten days before death.

There was no pus found in the frontal lobe, simply some softening and disorganization from the hernia cerebri. This prevented, as Dr. Erdmann states, a bony union of the bone flap, but as the specimen which I now present shows there was a good fibrous union. The tumor was found to be a glioma occupying the right cerebellar hemisphere, compressing the pons varolii on that side, and including in but not destroying the cranial nerves. The growth of the tumor was very slow for a glioma, and I had been led to expect from this fact that we had to do with a syphiloma.

The tumor was $3\frac{1}{2}$ inches long and $2\frac{1}{2}$ inches wide, as shown in the specimen I now present.

This case, therefore, shows of how little value for localization the situation of cephalalgia is when the growth is deeply situated, and slow in its development, and it also demonstrates how tolerant the cerebral structures are when injury to them is gradual.

It is also an evidence of the relief which can be given at a long distance from the lesion from the lessening of cerebral pressure. On opening the skull by Dr. Erdmann, the dura mater was found very tense, and a large amount cerebro-spinal fluid was lost. I at first thought we would find the growth under the frontal lobe pressing it upwards. The considerable manipulation of the frontal and temporal lobes, which was necessary in order to discover the presence or absence of a tumor, did not produce any shock, at least as shown by the course of the case in the following weeks.

The operation was a somewhat protracted one and it was necessary several times to resort to artificial respiration; this I ascribed to the ether, which was badly borne by the patient. I believe, indeed, that the brain can stand considerable manipulation without injury.

The operation was an exploratory one, as no positive

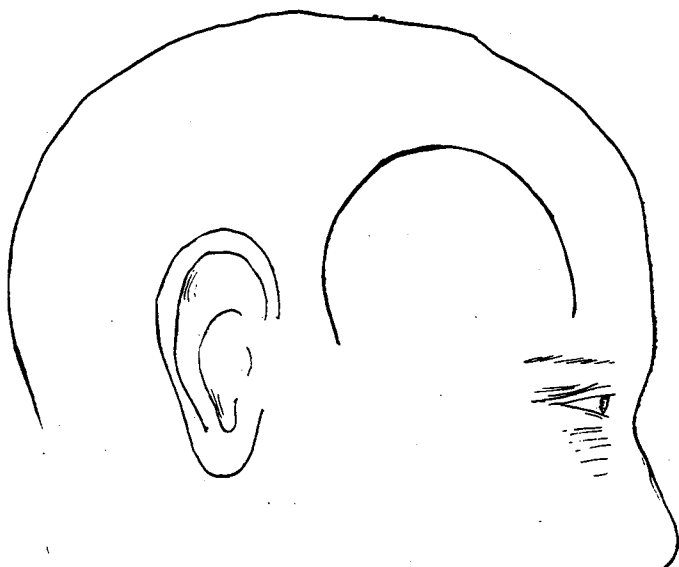
diagnosis was made of the situation of the growth, and as I have said, the localization of the pain was our principal guide, the relief of which was all that we anticipated.

I would take this opportunity also to refer to the method of operation in these cerebral cases by the bone flap. Several such operations have come under my observation with invariably good results. There does not seem in my experience to result any cerebral shock from the use of the chisel and hammer and in cases when suppuration from any cause or hernia cerebri is absent, the bony union is good. In a case operated on for me by Dr. Woolsey and reported by him, the autopsy some two years later showed a perfect bony union, without adhesion of the membranes.

I would take this opportunity to thank Dr. Pearce Bailey for the history of the case, and Mr. Slade of Bellevue College for the illustration.

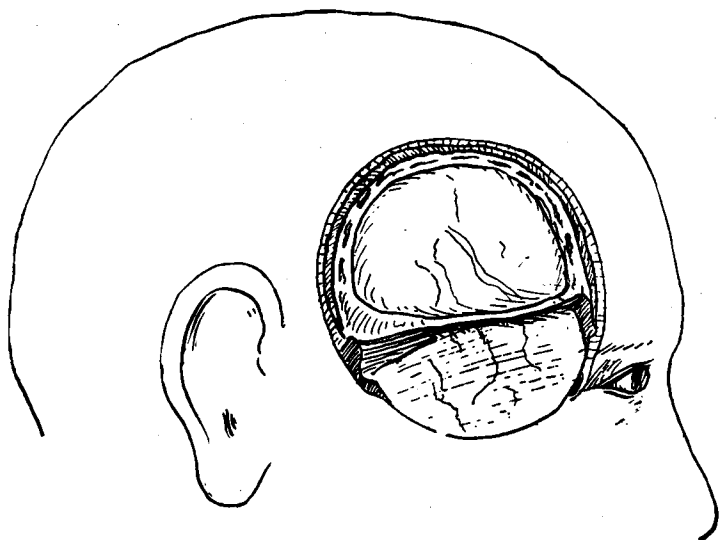
OPERATION DECEMBER 9, 1894, BY DR. JOHN F. ERDMANN,
IN THE PRESENCE OF DRS. FISHER, BAILEY AND OTHERS.

A large omega-shaped flap was made with the base downwards beginning about three-quarters ($\frac{3}{4}$) of an



inch to the left of the right external angle of the frontal bone and extending backwards for two and a half ($2\frac{1}{2}$) inches. This size opening was made with a view to exposing the anterior and middle fossæ. The flap was of the composite type, skin, muscle, etc., and bone all in one, the bone being chiseled through in the incision made by the knife.

After raising the flap and breaking the bony base line, there was a marked bulging of the cranial contents protected by healthy dura.



Extradural examination of both fossæ was made with a negative result. The dura was then incised, with a view to examining the cerebrum, whereupon fully three-quarters of a teaspoonful of cerebral tissue was extruded. Careful digital examination was then made of the cortex of the anterior and middle lobes without finding any evidence of cortical or deeper-seated new growth. At this stage of the procedure the patient's condition was such that to further search was considered inadvisable. Owing to the marked bulging considerable difficulty was experienced in closing the incision in the dura and

in properly adjusting and retaining the composite flap in its proper position.

A small drain of sterile gauze was introduced, and then after suturing, a firm dressing was applied over a compress of gauze used with a view to holding the bone flap in place. Owing to the succeeding dressings being loosely applied by the attendant in the absence of the operator, bony union never took place, but the flap of bone became united by means of fibrous tissue. A small cerebral hernia was present for about a week, and then union took place in the entire line of the cutaneous portion of the flap, except at the site of the original drain. This small fistula existed at the time of death, eleven weeks later, discharging during life a thin watery fluid.

Autopsy.—Small fistula at lower portion angle of the wound; otherwise complete union in the skin. Fibrous union of the bony flap to the surrounding bone with the bony flap super-imposed upon the base line of the cranial opening due evidently to cerebral bulging. No evidence whatever of necrosis.